

Multifamily Facility Management Services

BURNER REPLACEMENT: GAS-FIRED POWER BURNER

Description:

In some older multifamily and small commercial buildings the original coal burning boiler has been retrofitted with a gas-fired, atmospheric burner. In an atmospheric burner, both the fuel and the air are delivered to the combustion chamber at atmospheric pressure. In many instances, the efficiency of these burners can be improved with a high-efficiency retrofit that reduces excess air to a minimum. In some cases, such a retrofit is not practical or does not improve the efficiency as much as desired. Under these circumstances, another option for improving the efficiency of the boiler is to install a replacement power burner.

A power burner is one in which the air for combustion (and sometimes the fuel as well) is supplied to the combustion chamber at a pressure higher than atmospheric pressure. Power burner boilers are more efficient because the design allows precise control over the air/fuel mixture, minimizing excess air and resulting in more consistent combustion efficiency. In addition, louvers on the power burner close during the off-cycle to prevent air from drafting through the boiler, providing benefits similar to a vent damper.

The most common type of power burner has a basic on-off operation, in which fuel is fixed at a certain input. Two other power burner types are also available which appear to operate more efficiently: the low-high and the modulating. In these burner types, input is varied to meet demand. Ideally these designs should also modulate combustion air. While data is limited, potential savings for the fully modulating burner over simple on-off operation may be as high as 9%.

How to Implement:

A replacement power burner must be installed by a licensed, qualified contractor familiar with power combustion equipment. Only existing atmospheric burners which have a tested steady state efficiency of less than 75% after all possible tune-up procedures have been completed should be considered for replacement.